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Career Decision-Making in  
Learning Disabled/ Gifted High School Students

Graduate Thesis

Submitted to the Faculty

Of the School Psychology Program

College of Liberal Arts

Rochester Institute of Technology

By

Kristin Belknap

In Partial Fulfillment of the Requirements

For the Degree of

Masters of Science and

Advanced Graduate Certificate

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May 12, 2001

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### Abstract

Little is known about the career decision-making difficulties faced by high school students who are both gifted and learning disabled. Learning disabled/ gifted individuals have a learning disability in one or more areas, yet demonstrate extraordinary strengths in other areas. This study examined how this unique set of abilities affects an individual's career decision-making process, using the Career Decision Scale (Osipow, 1980) and the Career Thoughts Inventory (Sampson, Peterson, Lenz, Reardon, Saunders, 1994). Eleven high school students participated in the study. There was a high degree of variability among the scores, most likely due to the unique characteristics of each learning disabled/ gifted individual. Overall, no area was rated significantly higher or more discrepant than the normative sample.

## Review of the Literature on Career Decision-Making in Learning Disabled/ Gifted High School Students

A significant task for students at the end of their high school careers is to seriously consider and plan for their future education and careers (Noeth, Engen, & Noeth, 1984). According to Erikson (1980), adolescence is a time when one's identity as a person is formed. The adolescent is developing a firm sense of who they are, where they are going, and how they fit into society. Adolescents' ability to think hypothetically allows them to consider possible future selves, enabling them to begin making decisions about future educational and career plans. Adolescents are striving to find a vocation that fits with their concept of who they are, considering not only their interests, but also their capacities and their values (Holland, 1973). Gifted and learning disabled individuals must also consider their unique characteristics, such as talents and disabilities, when making decisions about future career plans.

### Theories of Career Decision-Making

Several theorists have proposed that career interests are an expression of an individual's personality and that for the most satisfaction for the individual, there must be a positive correlation between career choice and personality (Holland, 1973; Osipow, 1976). These theorists also suggest that career decision-making is a developmental process which involves self-knowledge and knowledge of the work environment. This review will examine the major theories of career decision-making and the implications for students who are learning disabled and students who are gifted. Finally, the implications for students who are both learning disabled and gifted will be discussed.

### Holland's Typology of Vocational Choice Theory

Holland's (1997) recently revised theory is based on the assumption that vocational interests are aspects of personality. Therefore an individual's vocational interest is an expression of his or her personality. People search for environments that will allow them to use their skills and abilities, express their attitudes and values, and take on agreeable problems and roles. Holland categorizes individuals into six personality dimensions, representing personal orientations: realistic, investigative, artistic, social, enterprising, and conventional. There are six occupational environments that correspond to each one of these personality types.

According to Holland's theory, consistent and well-defined interest inventory profiles, in which the major interest patterns are compatible, are related to stability of vocational choice, decision-making ability, interpersonal competency, and career maturity (Holland, Gottfredson, & Nafziger, 1978). In other words, the better a person fits one of the six personality types, the easier it will be for him or her to make career decisions. Osipow (1999) points out that individuals who belong to two or more types equally are likely to be undecided about their careers, especially if the two types were in fields quite different from each other. Such an individual may have so many interests that a decision is difficult to make. On the other hand, a person with low scores on all types would not have interests sufficiently crystallized to permit a commitment to a field.

Several large-scale investigations were conducted by Holland and his colleagues to test the validity of the theory (Holland, 1963a, 1963b, 1963c, 1963d, 1963e, 1964, 1968; Holland & Nichols, 1964). Thirty thousand subjects were studied in these investigations. The results of the studies showed that Holland's six personality types were representative

of the populations studied. Students showed the expected traits for the personality type with which they were characterized and fit neatly into the six categories.

In his study of 89 male college students, Andrews (1975) found support for Holland's theory that people search for vocations that are compatible with their personalities. Bobele, Alston, Wakefield, and Schnitzen (1975) found that people used adjectives to describe themselves in a manner consistent with Holland's six personality types. Yonge and Regan (1975) provided further support for Holland's theory in their longitudinal study of 833 male college freshmen, finding that personality and college major choice were related. Holland's personality types have been found to be adequately correlated with several personality inventories, such as the 16PF (Bolton, 1985), Edward's Personal Preference Schedule (Wakefield & Cunningham, 1975), and Myers-Briggs Type Indicator (Nord, 1976), among others.

While Holland's trait and factor theory provides an understanding of why individuals choose particular careers, it does not fully explain how an individual actually arrives at a career choice. Super's (1990) theory of career development considers occupational decision-making to be a developmental process. This theory will be described next.

### Super's Theory of Career Development

Super's theory of career development is based on an integration of theories from differential psychology, self-concept theory, and developmental psychology. According to Super (1990), the adolescent is developing and implementing a vocational self-concept. Vocational self-concept develops through an integration of interactions with personal, educational, and vocational environments. According to early published work by Super,

the choice of an occupation requires a person to explicitly state his concept of himself by saying "I am this or that kind of a person" (Super, 1953, p. 88). This view assumes that a person must have a realistic view of himself or herself before being able to make a career choice. Through a process of reality testing, individuals extend their concept of self to occupations that are compatible with their views of themselves.

Super (1953, 1990) proposed five stages of vocational decision-making that occur during an individual's life. During adolescence (ages 15-24), Super believes that the individual is in the "Exploration Stage" where he clarifies his concept of self by examining his needs, interests, capacities and values in light of tentative career choices and career activities. Between the ages of 15 and 17, the adolescent is considering needs, interests, capacities, and values. Tentative career choices are made and rehearsed in fantasy, discussion, coursework, and job experiences. Between the ages of 18 and 21, the individual is focusing on the tasks involved with career trial and actual career choice.

Super's theory also emphasized *career maturity*, which involves an individual's readiness to make educational and career decisions. Career maturity can be defined as knowledge of one's career interests, abilities, and goals in relation to the world of work. The dimensions of career maturity include planfulness (planning for the immediate future); exploration (attitudes about use of resources for learning about different vocations); cognitive information (knowledge about job requirements, working conditions, etc.); decision-making skills; and reality orientation (self-knowledge, suitability of career choice). Individuals high in career maturity can identify personal strengths and interests and have sufficient information about the occupational world to make career decisions. Intelligence and self-concept appear to play an important role in adolescent vocational



development. Students who are more intelligent and have better developed self-concepts tend to have a clear, well-rounded view of themselves (Jordaan, 1977).

### Cognitive Information Processing Theory of Career Development:

Peterson, Sampson, and Reardon (1991) proposed an information processing theory of career development. According to this theory, career choices involve the combination of self-knowledge and occupational knowledge. Self-knowledge involves an individual's perceptions of their values, interests, and skills based on their current thoughts and feelings. Occupational knowledge includes having knowledge of individual occupations and a schema for how the world of work is organized.

Based on their knowledge in these areas, individuals use their decision-making skills to make career decisions. According to this theory, it is important that a person understand and effectively use problem-solving skills. Problem-solving skills include the following:

- (1) *Communication*: the individual becomes motivated to seek career information;
- (2) *Analysis*: the individual obtains new information and reflects upon what has been learned;
- (3) *Synthesis*: the individual generates a list of potential occupations or majors and then reducing this list based on values, interests, and skills;
- (4) *Valuing*: tentative career choices are made based on an individual's evaluation of the costs and benefits of each alternative to themselves, significant others, their cultural group, and their community or society; and
- (5) *Execution*: the individual develops a plan of action for implementing their tentative career choice.

Difficulties in making career decisions may arise when an individual has weak problem-solving skills or when there is a breakdown in any one of the problem-solving steps (Peterson, et al., 1991).

According to Cognitive Information Processing Theory (Peterson, et al., 1991) metacognitive skills enable an individual to control the selection and sequencing of cognitive strategies, such as *self-talk*, *self-awareness*, and *control and monitoring*. Self-talk is the quick, silent talk people have with themselves concerning how well they are completing a given task, in this case career problem solving and decision-making. Self-awareness is the extent to which people are aware of themselves as they progress through the problem solving and decision-making process. This includes an individual's awareness of the nature and impact of self-talk on their behavior. Control and monitoring refers to the extent that an individual is able to monitor where he or she is in the decision-making process and to control the amount of attention and information required for problem solving. This also involves monitoring when self-talk is dysfunctional and subsequently controlling or refraining thoughts to be more appropriate.

According to Peterson, et al. (1991), metacognitions influence the decision – making skills, which in turn influence the content and function of self-knowledge and occupational knowledge. For example, if a person believes that he or she is not good at making important decisions, such as a career choice, he or she may be less likely to attempt a systematic decision-making strategy. Such negative self-talk and the accompanying anxiety will result in negative self-perceptions of interests and skills and a decreased likelihood of engaging in exploratory behaviors necessary to obtain occupational knowledge. These dysfunctional career thoughts negatively affect self-

knowledge and occupational knowledge and make career decision-making difficult.

Individuals with positive self-talk, on the other hand, are able to apply their own effective problem-solving and decision-making skills, thus enhancing self-knowledge and occupational knowledge. Positive career thoughts result in effective career decision-making.

### Additional Variables That Influence Career Decision-Making

The social learning theory of career decision-making proposed by Mitchell and Krumboltz (1990) identifies four kinds of variables that influence career decision-making. These include genetic endowment and special abilities; environmental conditions; learning experiences; and task approach skills. According to this theory, the unique potential with which each individual is born is affected by the social, cultural, political, and economic context in which the individual exists. As the individual learns about the environment and his or her effect on it, task approach skills develop. Task approach skills are learned abilities that are used to deal with the environment, to make interpretations in relation to self-observations and world-view generalizations, and to make predictions about future events. These skills are important in making decisions about one's career.

Self-esteem has been shown to have an influence on career decision-making.

Adolescents who score high on measures of self-esteem are more secure in their career choices. Adolescents with high self-esteem were also high in vocational identity and sense of well being. Self-esteem directly influences mature career attitudes and work achievement (Crook, Healy, & O'Shea, 1984).

Locus of control also appears to influence career decision-making (Bernardelli, DeStefano, & Dumont, 1983; Gardner, 1981). Adolescents with higher internal locus of

control show greater career maturity in career choices, plan ahead for their careers, and are more knowledgeable of their work attitudes than students with an external locus of control. A person's belief in his or her ability to control the course of events in his or her life affects attitudes toward career choice and the world of work. An individual with an internal locus of control perceives his or her career decisions to be contingent on his or her own behavior and active information-seeking, resulting in greater career maturity.

Task approach skills, self-esteem, and locus of control are all important factors that affect an individual's ability to make effective career decisions. The influence of these variables on the career decision-making process of gifted, learning disabled, and learning disabled/ gifted adolescents will be considered next.

### Career Decision-Making Among Gifted Adolescents

Adolescents are required to make educational and career choices that will affect the rest of their lives. This decision may come easily for some students, but may be much more difficult for others (Rojewski & Hill, 1997). Career decision-making may pose an extreme challenge for academically gifted adolescents in particular (Stewart, 1999). Many educators believe that gifted individuals will have no problems choosing and excelling in any career because they are so intelligent, which typically results in less career guidance for these students. This often contributes to premature career selection, or the opposite, a delay in choosing a career due to a lack of information (Delisle & Squires, 1989). Kelly (1992) found that among his sample of 205 seventh and eighth graders, gifted students were not higher in vocational identity (defined as the extent of one's understanding of their abilities and how to implement their abilities in a career) than their peers in the regular curriculum. Furthermore, gifted students reported needing occupational information as

much as or more than their non-gifted peers.

Karnes and Oehler-Stinnett (1986) found that gifted adolescents perceived events related to achievement, social status, and career decision as more stressful than did control subjects. Emmett and Minor (1993) surveyed gifted, recent high school graduates regarding factors that influenced their ability to choose a career. The factors that many of the gifted individuals reported fell into five categories: heightened sensitivity to others' expectations and societal problems; perfectionism; psychosocial development; superior intelligence; and multipotentiality. Gifted individuals realized that their career choices affected others and strongly felt the pressure from parents, teachers, and others to be more than just average. In regard to perfectionism, gifted individuals were concerned about choosing a career that would lead to the best preparations for the future and the most potential for future advancement. They wanted careers that would give them a sense of accomplishment and that would be meaningful and would make a difference in the lives of others. It was also extremely important that the career they chose was congruent with their values. They wanted freedom to do their work in the way that they wanted without having to conform to others' values. Their high intellectual abilities resulted in desires for careers that would constantly offer challenge and variety. These gifted individuals did not want boring, monotonous jobs; they wanted to constantly learn and be stimulated. Some individuals in the study expressed a desire to keep options open, thus delaying career decisions, due to a wide range of abilities and interests (i.e., multipotentiality).

Many of the participants in Terman's studies (Terman & Oden, 1935, 1947) reported difficulty choosing among career options and discrepancies between the level of their ability and the meaningfulness of their work. Post-Kammer and Perrone (1983)

found that many gifted individuals felt unprepared to make career decisions upon graduation from high school and found it difficult to relate career interests and abilities to career opportunities. The subjects reported a lack of satisfaction in their work and a concern that they had not lived up to their potentials. As predicted by Holland's theory, satisfaction from one's career results when the career allows for expression of one's interests and abilities. For gifted adolescents it is difficult to find a career that will result in fulfillment of all of their abilities and interests.

Academic giftedness is often referred to as "multipotentiality" in the literature, which is the ability to succeed in a variety of occupations (Emmett & Minor, 1993) and is characterized by high-flat ability and interest profiles (Achter, Benbow, & Lubinski, 1997). In other words, there is little variability in their ability and interest profiles; they have high abilities in all areas. Multipotentiality is believed to lead to the problem of multiple and competing career options (Delisle & Squires, 1989). Gifted students often have several interests and they may excel in all of them, which makes it difficult to choose just one career (California Association for the Gifted, 1988). Many gifted individuals lack the knowledge and the information on how their multiple talents can be integrated into a career role (Frederickson, 1986). According to Cognitive Information Processing theory (Peterson, et al., 1991), difficulties in career decision-making arise when an individual's self-knowledge and occupational knowledge are not adequately developed. Too many options and not enough guidance can lead to a delay in career decision-making, multiple changes of major in college, and even a lack of direction in adulthood (Kerr & Ghrist-Priebe, 1988). Without career guidance, many multipotential students may only flounder among their multitude of options, continually delaying career decisions (Achter,

Benbow, & Lubinski, 1997).

While these difficulties in making career decisions may exist for many gifted adolescents, other gifted adolescents know exactly what career they want to follow; this finding has lead some to question the idea of multipotentiality (Milgram & Hong, 1999). While most gifted individuals do have high abilities in several areas and a wide range of interests, there is often one area of special interest in which they excel above the rest. These individuals are often referred to as early emergers in the literature because they tend to make occupational decisions early in life (Achter, Lubinski, & Benbow, 1996). This pattern of career decision-making may also be problematic. When gifted students make career choices early in their lives, they may end up limiting their knowledge of the world of work and their career opportunities (Stewart, 1999; Kelly & Colangelo, 1990). Gifted individuals often restrict their career choices to highly prestigious occupations (Leung, 1998). The pressure to pursue highly prestigious careers may result in a high level of stress for gifted adolescents. It may also lead some students to neglect their interests and other abilities (Stewart, 1999). Whether multipotential or interested in one specific area, it is clear that gifted individuals are faced with unique dilemmas in their career decision-making process.

#### Career Decision-Making Among Learning Disabled Adolescents

Another group of students who may exhibit difficulties making career decisions are those who have a specific learning disability. A specific learning disability is defined as a "disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations" (Individuals with

Disabilities Education Act, 1997). Career maturity is a developmental process that may present unique difficulties for individuals with learning disabilities (Alley, Deshler, Clark, Shumaker, & Warner, 1983). Because individuals with learning disabilities frequently have problems processing information correctly, they may find facts about different careers confusing and overwhelming (Rosenthal, 1989). Studies have found that adolescents with learning disabilities are more immature than their non-learning disabled peers in their understanding of the demands associated with different career choices (Bingham, 1978) and in understanding their abilities, preparing to perform work, and searching for appropriate careers (Mithaug, Horiuchi, & Fanning, 1985).

By high school, learning disabled students have suffered the consequences of failure many times, resulting in a poor self-concept. Many studies have reported self-concept problems among learning disabled students, including problems of identity, learned helplessness, and low self-esteem (Cruickshank, Moss, and Johns, 1980; Deshler, 1978). Feelings of depression and guilt have also been observed in learning disabled adolescents (Anderson, 1970). Furthermore, learning disabled students may doubt their intelligence and have a heightened fear of failure (Weber, 1974). These feelings may lead to a lack of motivation to achieve (Anderson, 1970) and difficulty perceiving oneself as a potential worker (Biller, 1985). According to Cognitive Information Processing Theory, these negative attitudes may affect their ability to effectively engage in the career decision-making process (Peterson, Sampson, & Reardon, 1991). As a result of self-concept problems, adolescents with learning disabilities may be less able to assess their abilities, interests and values, and career decision-making becomes a troublesome process (Ohler, Levinson, & Sanders, 1995). Their history of academic problems often leads to the use of



an external locus of control, which results in poor career decision-making (Bernardelli, DeStefano, & Dumont, 1983).

Dowdy, Carter, and Smith (1990) report that individuals with learning disabilities have lower educational and occupational aspirations than their non-learning disabled peers. These lower aspirations may reflect perceived barriers to occupational success resulting from discrimination, social attitudes, cultural expectations, and stereotypes (Rojewski, 1994). In a large-scale study of 404 learning disabled and 1,153 non-learning disabled twelfth graders (Rojewski, 1996), only 44% of the learning disabled students aspired to a four-year college degree or higher, compared to 70% of the non-learning disabled students. Adolescents without learning disabilities were almost twice as likely to aspire to high prestige occupations than adolescents with learning disabilities. In a follow-up study of high school graduates with learning disabilities, their occupational functioning has been found to be less than optimal. The jobs that individuals with learning disabilities obtain are often unskilled or semiskilled jobs at an entry level. Learning disabled students are overrepresented in these types of jobs (Humes & Brammer, 1985).

There is ample evidence that adolescents with learning disabilities have more difficulties in making career decisions than their non-learning disabled peers. Gifted students also have difficulty narrowing down their career choice to the one "right" occupation that will give them a sense of fulfillment. But what about the students who have a specific learning disability but are also very bright and talented in other areas (i.e., the learning disabled/ gifted)? What kind of unique difficulties do these adolescents experience as they make decisions about their future careers?

### The Learning Disabled/ Gifted Adolescent

The learning disabled/ gifted child is one who has a learning disability in one or more areas, yet demonstrates extraordinary strengths in other areas (Norton, Hartwell-Hunnicutt, & Norton, 1996). For example, these students may have exceptional mathematical skills, but not be able to read. Typical strengths of learning disabled/ gifted students include the ability to engage in abstract reasoning and oral communication, strong problem-solving skills, and creativity. Typical deficits observed in learning disabled/ gifted students include poor memory skills, difficulty with visual-motor integration, and visual/ auditory processing problems (VanTassel-Baska, 1991). Some of the social and psychological characteristics of learning disabled/ gifted students include low self-concept, less peer acceptance, anxiousness and frustration, passive behavior, slow response action, boredom, and having a specific area of great interest (Baum, 1989).

Vespi and Yewchuk (1992) interviewed four learning disabled/ gifted boys, ages 9 through 12, regarding their social-emotional characteristics. Three of the four young boys had future career aspirations and had already chosen a career field. All four boys had an internal locus of control, seeing both their successes and their failures as a result of their abilities. Frustration was a common theme; it was especially difficult to deal with underachievement when they were constantly being reminded of how bright they were. Their fear of failure was very strong and often led the boys to avoid tasks. While these results cannot be generalized to the entire population of learning disabled/ gifted individuals, due to the small sample size, they provide clues toward understanding learning disabled/ gifted individuals.

## Career Decision-Making Among the Learning Disabled/ Gifted

Despite the large body of literature on learning disabled/ gifted students, there has been no research addressing career decision-making among these individuals. Learning disabled/ gifted individuals have several characteristics in common with gifted individuals and with learning disabled individuals. Using what is known about these two groups, hypotheses can be generated about the career decision-making difficulties experienced by students who are both learning disabled and gifted.

As suggested by Super's theory, self-concept problems that are often evident in learning disabled/ gifted students (Baum, 1989) may lead to poor vocational identity and career immaturity. Poor self-concept may be related to dysfunctional thinking, which may result in ineffective career decision-making (Peterson, et al., 1991). Learning disabled/ gifted individuals tend to be anxious (Baum, 1989), and may therefore have difficulty committing to a career choice because of generalized anxiety about the outcome of the decision-making process. According to Holland's theory (1997), individuals search for a career that will be compatible with their personality. Because their abilities are so varied, gifted/ learning disabled individuals may have difficulties developing an understanding of their abilities, interests, and values. According to Cognitive Information Processing Theory, poorly developed self-knowledge may result in difficulty choosing a career compatible with their personality. Poor self-knowledge may also make it difficult for an individual to engage in the career decision-making process altogether. Learning disabled/ gifted students may fit the profile of the "early emerger" described by Achter, et al. (1996) because of their specific area of great talent and interest (Baum, 1989), which may result in a premature career choice (Stewart, 1999).

Because all that is known about career decision-making difficulties among learning disabled/ gifted students is speculative, research in this area is needed. This thesis will examine the unique difficulties that learning disabled/ gifted students encounter in their career decision-making process. Because the ability profile of each learning disabled/ gifted individual is unique for him or her, there are two potential problems that may arise in the career decision-making process of these individuals. The first hypothesis is that some learning disabled/gifted individuals will score higher than average on a measure of career indecision. The areas of career decision-making difficulty will fall under a) a lack of understanding of their unique ability profiles in relation to a career choice, or b) generalized anxiety about the outcome of the decision-making process. It is expected that these Learning Disabled/ Gifted students will score higher than the normative group on a measure of career decision-making anxiety and on a measure of career decision-making confusion. The second hypothesis is that some learning disabled/ gifted individuals will have a specific area of great talent and interest that they decide to pursue, and will not experience difficulty making career decisions. Therefore, it is expected that some Learning Disabled/ Gifted students will score higher than the normative sample on a measure of career certainty. Overall, it is expected that there will be much variability among the levels of career certainty and career indecision of learning disabled/ gifted students because of each individual's unique characteristics.

## Method

### Participants

Four ninth grade, three tenth grade, one eleventh grade, and three twelfth grade students were recruited from two upper-middle class suburban school districts of a mid-

sized Northeastern city. Nine were male and two were female. One was Asian and the rest were Caucasian. Participants were identified through a file review by the school psychologist in each school. To be eligible to participate in the study, the students had to be Learning Disabled/ Gifted (i.e., display exceptional strengths in one (or more) area(s) and weakness(es)/ disability(ies) in other area(s)). The following criteria were used to determine eligibility as Learning Disabled/Gifted:

- (1) The student scored 125 or greater on the Full Scale IQ, Verbal IQ, or Performance IQ as measured by the Wechsler Intelligence Scale for Children- Third Edition (WISC-III), Wechsler Intelligence Scale for Children- Revised (WISC-R), or the Wechsler Adult Intelligence Scale- Third Edition (WAIS-III) and
- (2) The student was classified as Learning Disabled by their school district's Committee on Special Education.

The mean IQ score in area of superiority was 128 (SD = 1.92). The area of disability varied across subjects. This information is depicted in Table 1.

### Measures

Each student completed two standardized measures of career decision-making: The Career Decision Scale (Osipow, 1980) and the Career Thoughts Inventory (Sampson, Peterson, Lenz, Reardon, Saunders, 1994).

Career Decision Scale. The Career Decision Scale (CDS; Osipow, 1980) was designed to identify barriers to effective career development. Based on interview data from clients, the CDS identifies sixteen independent reasons for career indecision. The CDS contains two scales, the Certainty Scale and the Indecision Scale. The Certainty

Scale includes two items in which the individual rates how certain he or she is about making a decision about a college major and a career. The Indecision Scale includes sixteen items addressing various reasons for career indecision, including uncertainty and lack of skill for their desired career, among others. The individual rates each item on a four-point Likert scale, ranging from “not at all like me” to “exactly like me.” Raw scores for the Certainty Scale and the Indecision Scale are converted into percentile ranks using norm tables provided in the back of the manual. In addition, the mean raw score for each grade level was reported in the manual. Therefore, raw scores were used in the analysis.

The CDS was standardized using a representative sample of 1,458 ninth through twelfth grade students. To determine the predictive validity of the CDS, Hartman, Fuqua, Blum and Hartman (1985) administered the CDS to 206 graduating high school seniors. Four years later, they collected information about each individual’s career status. They found that the CDS adequately distinguished between high school students who had a stable career direction and those who consistently did not. In a similar study, Hartman and Hartman (1982) found that the CDS predicted the likely behavior (choice of a career or not) of high school seniors one year later. In this same study, Hartman & Hartman (1982) compared each student’s CDS Indecision score to a statement he or she wrote describing his or her career decisions to determine the concurrent validity of the CDS. The statements were rated using a 7-point Likert-type rating scale. Pearson product-moment correlations were  $r = .59$ ,  $p < .001$ , indicating that the CDS provided an accurate reflection of the level of vocational indecision experienced by the participants.

Because undecided students have been characterized as being anxious, externally controlled, and confused about their identities, Hartman, Fuqua, and Hartman (1983) used

these three variables, as measured by commonly used rating scales, as criteria to examine the construct validity of the CDS. The multiple correlation coefficient between the CDS Indecision scale and the measures of these criterion variables was .69, indicating adequate construct validity. Tinsley, Bowman, and York (1989) examined the construct validity of the CDS by comparing it to three other measures of career indecision: My Vocational Situation (Holland, Daiger, & Power, 1980), Vocational Rating Scale (Barrett & Tinsley, 1977a), and Decisional Rating Scale (Barrett & Tinsley, 1977b). All four scales were administered to 252 college freshmen. The results indicated that all four instruments measured related vocational constructs: “crystallization,” which refers to an individual’s clarity and certainty about a career; “decision-making obstacles,” which refers to deficits in an individual’s knowledge of the world of work; and “indecision,” which refers to an individual’s inability to effectively make a career choice.

Slaney and Palko-Nonemaker (1981) assessed the test-retest reliability of the CDS by readministering the CDS six weeks later to a sample of 857 college students. The test-retest reliability coefficient was .70. Using a sample of 100 graduate students, Hartman, Utz, and Farnum (1979) found that the sixteen items of the Indecision scale correlate highly with the total score. The internal consistency reliability coefficient was  $r = .92$

Career Thoughts Inventory. The Career Thoughts Inventory (CTI; Sampson, et al., 1994) is based on the Cognitive Information Processing theory of career development proposed by Peterson, Sampson, and Reardon (1991). The CTI assesses negative thinking in career problem solving and decision-making. The CTI consists of three scales: Decision Making Confusion, Commitment Anxiety, and External Conflict. Decision Making Confusion involves the inability to initiate or sustain the career decision-making

process as a result of disabling emotions and/ or a lack of understanding of the decision-making process itself, such as “I’ll never find a field of study or occupation I really like.” This scale consists of fourteen items. The Commitment Anxiety Scale consists of ten items, which measure the inability to make a commitment to a specific career choice because of generalized anxiety about the outcome of the decision-making process. An example of an item in this scale is “I’m afraid I’m overlooking an occupation.” The External Conflict Scale measures the inability to balance the importance of input from significant others, which may result in a reluctance to assume responsibility for decision-making. This scale consists of five items. An example of an item is “The views of important people in my life interfere with choosing a field of study or occupation.” There are nineteen additional items, which assess general indecision about a specific career and unwillingness to engage in the decision-making process. Such items include “I know so little about the world of work” and “Jobs change so fast it makes little sense to learn much about them.” All 48 items combine to yield a CTI Total score, which is reported to be a measure of dysfunctional thinking in career problem solving and decision-making. Each item is rated using a four-point Likert-type scale, ranging from “Strongly Disagree” to “Strongly Agree.” Raw scores for each scale are converted into T Scores using norm tables provided in the manual.

The CTI was standardized on a representative sample of 396 15- to 20-year-old high school students. Sampson et al. (1996) assessed the internal consistency reliability of the four scales, using coefficient alphas, which were .96 for the CTI Total score, .91 for the Decision Making Confusion scale, .85 for the Commitment Anxiety scale, and .74 for the External Conflict scale. Four-week test-retest reliability coefficients for high school



students were .69 for the CTI total score, .72 for Decision Making Confusion, .70 for Commitment Anxiety, and .52 for External Conflict. These coefficients are adequate for the use of the instrument, especially when considering that high school students are beginning the career decision-making process and are likely to quickly change their level in this process. Cognitive information processing dimensions (self-knowledge, occupational knowledge, communication, analysis, synthesis, valuing, execution, and executive processing) were the conceptual foundations for developing the items. Three development studies that utilized confirmatory factor analysis to group items into the three clusters indicated that the CTI has adequate construct validity (Sampson et al., 1996).

### Procedure

Eligible students were identified via a file review by the school psychologist in each school district. Letters were sent to inform parents of the study and request parental consent for their child's participation. Parents were able to provide consent to have the results of their child's career inventories shared with their child's school guidance counselor in order to assist with career planning and to receive a summary of the results of the study. The students were also asked to provide consent. Out of twenty-two eligible participants, eleven agreed to participate, resulting in a fifty percent response rate. Once parents and students provided written consent for participation in the study, the students' names were made available to this researcher. Information about each student's learning disability was collected from the school records, including the area of the learning disability and the most recent IQ scores. Each participant completed a data sheet that provided information about vocational courses taken in school and employment

experiences. The students completed the CDS and the CTI during a study hall in about one class period.

## Results

The first statistical objective was to determine if learning disabled/ gifted high school students have higher levels of career indecision compared to their typical peers. The subjects' raw scores on the CDS Indecision scale were compared to the mean raw scores of the normative group on the CDS Indecision scale for each grade, as reported in the CDS manual (Osipow, 1987, p.16). A paired-samples t-test indicated that there was no significant difference between the raw scores of the sample and the raw scores of the normative group,  $t(10) = .329$ ,  $p < .749$ . The same procedure was used to determine if the CDS Certainty scale score was significantly different from that of the normative sample. Again, a significant difference was not found,  $t(10) = -.828$ ,  $p < .427$ . The mean raw score of the sample was 5.00 ( $SD = 2.24$ ) for the Certainty scale and 31.18 ( $SD = 4.60$ ) for the Indecision scale. The respective means for the normative sample were 5.49 ( $SD = .298$ ) and 30.91 ( $SD = 1.76$ ). The standard deviations for the experimental sample were larger than those for the normative group because scores on the Certainty scale ranged from 2 (lowest possible score) to 8 (highest possible score). The scores obtained by the experimental sample on the Indecision scale ranges from 23 to 36 (total possible range of scores was 16 to 64).

The Career Thoughts Inventory (CTI) yielded T-scores for four scales: CTI Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict. A one-sample t-test was used to compare the mean score on each scale of the experimental group to the

mean score of the normative group, which is a T-score of 50. No significant differences were found. The results of the t-tests can be found in Table 3.

The standard deviations of the experimental group were similar to that of the normative group, which was 10, suggesting that the experimental group obtained scores representative of the normative group.

### Discussion

A confounding factor in this study was the extremely small sample size, because it is uncommon to find students with this unusual profile. An eligibility criterion for this study was to be classified as Learning Disabled by the Committee on Special Education. Many students who have areas of strength are able to compensate for areas of weakness and therefore are never identified as being learning disabled/ gifted. If the student is able to compensate for their learning disability, their academic performance will not be severely affected and they will not be classified.

On the Career Decision Scale, it is interesting to note that the standard deviation of the experimental group was higher than the standard deviation of the normative sample for both the Certainty scale and the Indecision scale. This suggests that there was a high degree of variance among the individual scores of the subjects. The range of scores on the Career Thoughts Inventory was also large. Therefore, as predicted, some learning disabled/ gifted students did score higher than the mean of the normative group on measures of career certainty, while some scored higher than the mean of the normative group on a measure of career indecision. Because there was so much variance among the scores in the experimental group, high scores balanced out low scores, resulting in a mean score similar to that of the normative group. Therefore, no significant differences were

found. This result supports the prediction that some students would exhibit higher than average career certainty, while others would exhibit higher than average career indecision.

The Career Thoughts Inventory measured general career indecision, as well as specific areas that contributed to career indecision, namely confusion about the career decision-making process, anxiety about career decision-making, and pressure from others. Though no areas were found to be rated significantly higher by learning disabled/ gifted students than by the normative sample, the range of scores was large, suggesting that some of the subjects had difficulties in certain areas, while others did not. This again supports the prediction that learning disabled/ gifted students vary in the difficulties they face in making career decisions.

No significant differences were found among the Decision-Making Confusion, Commitment Anxiety, and External Conflict scales. Therefore, the hypothesis that learning disabled/ gifted individuals will display a lack of understanding of their various interests and abilities in relation to a career choice and/or anxiety about the decision-making process was not supported. However, the mean score of the Commitment Anxiety scale was slightly higher, though not significantly higher, than that of the Decision-Making Confusion and External Conflict scales. Additional research in the area of career decision-making anxiety among learning disabled/gifted students with a larger sample size is necessary.

The results of this study confirm that each learning disabled/ gifted individual has a unique ability and interest profile. Therefore, it is not surprising that the level of career certainty and the difficulties faced by learning disabled/gifted students in the career decision-making process varied greatly. This suggests that it is important for educators

to use career inventories to individualize career planning for learning disabled/ gifted students. Additional research in this area is needed in order to determine what, if any, common characteristics are exhibited by learning disabled/ gifted students in the career decision-making process.

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Table 1

Area of Superiority, IQ Scores in Area of Superiority (IQ Score), Area of Learning

Disability

Subject	Area of Superiority	IQ Score	Area of Learning Disability
1	Full Scale	134	Writing
2	Verbal	125	Writing
3	Verbal	125	Writing
4	Full Scale	125	Writing
5	Verbal	128	Writing
6	Full Scale	125	Writing
7	Performance	125	Reading
8	Performance	125	Reading
9	Full Scale	135	Writing
10	Performance	125	Reading
11	Performance	135	Reading

Table 2

Mean Total Scores, Standard Deviations, and T-Test Comparisons for CTI Scales

CTI Scale	Mean	Std. Dev.	One-sample t-test	p value
CTI Total	49.73	8.60	$t(10) = -.105$	.918
Decision-Making Confusion	48.55	9.05	$t(10) = -.533$	.606
Commitment Anxiety	53.55	11.26	$t(10) = 1.044$	.321
External Conflict	49.91	10.85	$t(10) = -.028$	.978